

exposure of the drill- or workover-string to high stresses as much as practical and consistent with well conditions. Proper handling techniques must be taken to minimize notching and stress concentrations. Precautions must be taken to minimize stresses caused by doglegs, improper stiffness ratios, improper torque, whip, abrasive wear on tool joints, and joint imbalance.

(6) *Flare system.* The flare outlet must be of a diameter that allows easy non-restricted flow of gas. You must locate flare line outlets on the downside of the facility and as far from the facility as is feasible, taking into account the prevailing wind directions, the wake effects caused by the facility and adjacent structure(s), and the height of all such facilities and structures. You must equip the flare outlet with an automatic ignition system including a pilot-light gas source or an equivalent system. You must have alternate methods for igniting the flare. You must pipe to the flare system used for H<sub>2</sub> S all vents from production process equipment, tanks, relief valves, burst plates, and similar devices.

(7) *Corrosion mitigation.* You must use effective means of monitoring and controlling corrosion caused by acid gases (H<sub>2</sub> S and CO<sub>2</sub>) in both the downhole and surface portions of a production system. You must take specific corrosion monitoring and mitigating measures in areas of unusually severe corrosion where accumulation of water and/or higher concentration of H<sub>2</sub> S exists.

(8) *Wireline lubricators.* Lubricators which may be exposed to fluids containing H<sub>2</sub> S must be of H<sub>2</sub> S-resistant materials.

(9) *Fuel and/or instrument gas.* You must not use gas containing H<sub>2</sub> S for instrument gas. You must not use gas containing H<sub>2</sub> S for fuel gas without the prior approval of the District Supervisor.

(10) *Sensing lines and devices.* Metals used for sensing line and safety-control devices which are necessarily exposed to H<sub>2</sub> S-bearing fluids must be constructed of H<sub>2</sub> S-corrosion resistant materials or coated so as to resist H<sub>2</sub> S corrosion.

(11) *Elastomer seals.* You must use H<sub>2</sub> S-resistant materials for all seals

which may be exposed to fluids containing H<sub>2</sub> S.

(12) *Water disposal.* If you dispose of produced water by means other than subsurface injection, you must submit to the District Supervisor an analysis of the anticipated H<sub>2</sub> S content of the water at the final treatment vessel and at the discharge point. The District Supervisor may require that the water be treated for removal of H<sub>2</sub> S. The District Supervisor may require the submittal of an updated analysis if the water disposal rate or the potential H<sub>2</sub> S content increases.

(13) *Deck drains.* You must equip open deck drains with traps or similar devices to prevent the escape of H<sub>2</sub> S gas into the atmosphere.

(14) *Sealed voids.* You must take precautions to eliminate sealed spaces in piping designs (e.g., slip-on flanges, reinforcing pads) which can be invaded by atomic hydrogen when H<sub>2</sub> S is present.

[62 FR 3795, Jan. 27, 1997. Redesignated and amended at 63 FR 29479, 29485, May 29, 1998]

## Subpart E—Oil and Gas Well-Completion Operations

### § 250.500 General requirements.

Well-completion operations shall be conducted in a manner to protect against harm or damage to life (including fish and other aquatic life), property, natural resources of the OCS including any mineral deposits (in areas leased and not leased), the national security or defense, or the marine, coastal, or human environment.

#### § 250.501 Definition.

When used in this subpart, the following term shall have the meaning given below:

*Well-completion operations* means the work conducted to establish the production of a well after the production-casing string has been set, cemented, and pressure-tested.

#### § 250.502 Equipment movement.

The movement of well-completion rigs and related equipment on and off a platform or from well to well on the same platform, including rigging up and rigging down, shall be conducted in

a safe manner. All wells in the same well-bay which are capable of producing hydrocarbons shall be shut in below the surface with a pump-through-type tubing plug and at the surface with a closed master valve prior to moving well-completion rigs and related equipment, unless otherwise approved by the District Supervisor. A closed surface-controlled subsurface safety valve of the pump-through type may be used in lieu of the pump-through-type tubing plug, provided that the surface control has been locked out of operation. The well from which the rig or related equipment is to be moved shall also be equipped with a back-pressure valve prior to removing the blowout preventer (BOP) system and installing the tree.

[53 FR 10690, Apr. 1, 1988, as amended at 55 FR 47752, Nov. 15, 1990. Redesignated at 63 FR 29479, May 29, 1998]

#### **§ 250.503 Emergency shutdown system.**

When well-completion operations are conducted on a platform where there are other hydrocarbon-producing wells or other hydrocarbon flow, an emergency shutdown system (ESD) manually controlled station shall be installed near the driller's console or well-servicing unit operator's work station.

#### **§ 250.504 Hydrogen sulfide.**

When a well-completion operation is conducted in zones known to contain hydrogen sulfide ( $H_2S$ ) or in zones where the presence of  $H_2S$  is unknown (as defined in § 250.417 of this part), the lessee shall take appropriate precautions to protect life and property on the platform or completion unit, including, but not limited to operations such as blowing the well down, dismantling wellhead equipment and flow lines, circulating the well, swabbing, and pulling tubing, pumps, and packers. The lessee shall comply with the requirements in § 250.417 of this part as well as the appropriate requirements of this subpart.

[53 FR 10690, Apr. 1, 1988. Redesignated and amended at 63 FR 29479, 29485, May 29, 1998]

#### **§ 250.505 Subsea completions.**

No subsea well completion shall be commenced until the lessee obtains written approval from the District Supervisor in accordance with § 250.513 of this part. That approval shall be based upon a case-by-case determination that the proposed equipment and procedures will adequately control the well and permit safe production operations.

[53 FR 10690, Apr. 1, 1988. Redesignated and amended at 63 FR 29479, 29485, May 29, 1998]

#### **§ 250.506 Crew instructions.**

Prior to engaging in well-completion operations, crew members shall be instructed in the safety requirements of the operations to be performed, possible hazards to be encountered, and general safety considerations to protect personnel, equipment, and the environment. Date and time of safety meetings shall be recorded and available at the facility for review by MMS representatives.

#### **§ 250.507 Welding and burning practices and procedures.**

All welding, burning, and hot tapping activities involved in well-completion operations shall be conducted in accordance with the requirements in § 250.402 of this part.

[53 FR 10690, Apr. 1, 1988. Redesignated and amended at 63 FR 29479, 29485, May 29, 1998]

#### **§ 250.508 Electrical requirements.**

All electrical equipment and systems involved in well-completion operations shall be designed, installed, equipped, protected, operated, and maintained in accordance with the requirements in § 250.403 of this part.

[53 FR 10690, Apr. 1, 1988. Redesignated and amended at 63 FR 29479, 29485, May 29, 1998]

#### **§ 250.509 Well-completion structures on fixed platforms.**

Derricks, masts, substructures, and related equipment shall be selected, designed, installed, used, and maintained so as to be adequate for the potential loads and conditions of loading that may be encountered during the proposed operations. Prior to moving a well-completion rig or equipment onto a platform, the lessee shall determine